

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification<sup>6</sup> :</b> <b>C12N 15/13, C07K 16/46, 16/28, A61K 39/395</b>	<b>A3</b>	<b>(11) International Publication Number:</b> <b>WO 97/17446</b> <b>(43) International Publication Date:</b> 15 May 1997 (15.05.97)
<b>(21) International Application Number:</b> PCT/US96/17875 <b>(22) International Filing Date:</b> 7 November 1996 (07.11.96)  <b>(30) Priority Data:</b> 08/554,840 7 November 1995 (07.11.95) US  <b>(71) Applicant:</b> IDEC PHARMACEUTICAL CORPORATION [US/US]; 11011 Torreyana Road, San Diego, CA 92121-1104 (US).  <b>(72) Inventors:</b> BLACK, Amelia; 2251 1/2 Oxford Avenue, Cardiff, CA 92007 (US). HANNA, Nabil; 3255 Fortuna Ranch Road, Olivenhian, CA 92024 (US). PADLAN, Eduardo, A.; 4006 Simms Drive, Kensington, MD 20895 (US). NEWMAN, Roland, A.; 4311 Robbins Street, San Diego, CA 92122 (US).  <b>(74) Agents:</b> TESKIN, Robin, L. et al.; Burns, Doane, Swecker & Mathis, L.L.P., P.O. Box 1404, Alexandria, VA 22313-1404 (US).	<b>(81) Designated States:</b> AU, CN, FI, HU, JP, KR, NO, NZ, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>  <b>(88) Date of publication of the international search report:</b> 25 September 1997 (25.09.97)	
<b>(54) Title:</b> HUMANIZED ANTIBODIES TO HUMAN gp39, COMPOSITIONS CONTAINING AND THERAPEUTIC USE THEREOF  <b>(57) Abstract</b>  The present invention is directed to humanized antibodies which bind human gp39 and their use as therapeutic agents. These humanized antibodies are especially useful for treatment of autoimmune diseases.		

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgyzstan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LI	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LK	Sri Lanka	SK	Slovakia
CM	Cameroon	LR	Liberia	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EE	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France	MR	Mauritania	UZ	Uzbekistan
GA	Gabon			VN	Viet Nam

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 96/17875

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 C12N15/13 C07K16/28 C07K16/46 A61K39/395

According to International Patent Classification (IPC) or to both national classification and IPC.

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 C12N C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 95 28957 A (TRUSTEES OF DARTMOUTH COLLEGE ET AL.) 2 November 1995  see examples see claims	1-3,14, 17,25, 28,29
A	--- EP 0 519 596 A (MERCK & CO. INC. ET AL.) 23 December 1992 see example see claims	1-5,7-14
A	--- WO 95 06666 A (TRUSTEES OF DARTMOUTH COLLEGE) 9 March 1995 see examples see claims  --- -/-	25-31

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*A\* document member of the same patent family

Date of the actual completion of the international search

22 July 1997

Date of mailing of the international search report

07.08.97

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patendaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Nooij, F

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 96/17875

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>SCIENCE, vol. 261, no. 5126, 3 September 1993, WASHINGTON, DC, USA, pages 1328-1330, XP002035702 F. DURIE ET AL.: "Prevention of collagen-induced arthritis with an antibody to gp39, the ligand for CD40." cited in the application see the whole document ---</p>	25-27,30
P,X	<p>WO 96 23071 A (BRISTOL-MYERS SQUIBB COMPANY) 1 August 1996 see examples see claims -----</p>	1-31

# INTERNATIONAL SEARCH REPORT

international application No.

PCT/US 96/ 17875

## Box I (Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet))

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 25-31  
because they relate to subject matter not required to be searched by this Authority, namely:  
Remark: Although claim(s) 25-31  
is(are) directed to a method of treatment of the human/animal  
body, the search has been carried out and based on the alleged  
effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such  
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II (Observations where unity of invention is lacking (Continuation of item 2 of first sheet))

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all  
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment  
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report  
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is  
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

international application No.

PCT/US 96/ 17875

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 25-31  
because they relate to subject matter not required to be searched by this Authority, namely:  
Remark: Although claim(s) 25-31  
is(are) directed to a method of treatment of the human/animal  
body, the search has been carried out and based on the alleged  
effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such  
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all  
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment  
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report  
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is  
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

international application No.

PCT/US 96/17875

## Box I (Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet))

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 25-31  
because they relate to subject matter not required to be searched by this Authority, namely:  
Remark: Although claim(s) 25-31  
is(are) directed to a method of treatment of the human/animal  
body, the search has been carried out and based on the alleged  
effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such  
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all  
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment  
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report  
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is  
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 96/17875

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9528957 A	02-11-95	AU 2358595 A	16-11-95
		CA 2188672 A	02-11-95
		CZ 9603125 A	12-03-97
		EP 0757557 A	12-02-97
		FI 964272 A	19-12-96
		HU 76091 A	30-06-97
		NO 964440 A	23-12-96
		PL 317022 A	03-03-97
EP 519596 A	23-12-92	CA 2068593 A	18-11-92
WO 9506666 A	09-03-95	AU 7642994 A	22-03-95
		AU 678532 B	29-05-97
		AU 7644594 A	22-03-95
		CN 1134113 A	23-10-96
		EP 0721469 A	17-07-96
		EP 0721346 A	17-07-96
		FI 960978 A	29-04-96
		FI 960980 A	30-04-96
		HU 74251 A	28-11-96
		HU 74246 A	28-11-96
		HU 74250 A	28-11-96
		JP 9502096 T	04-03-97
		JP 9502186 T	04-03-97
		NO 960861 A	30-04-96
		NO 960862 A	30-04-96
		WO 9506481 A	09-03-95
		ZA 9406766 A	19-04-95
		AU 7643094 A	22-03-95
		CN 1137758 A	11-12-96
		EP 0742721 A	20-11-96
		FI 960979 A	30-04-96
		JP 9502184 T	04-03-97
		NO 960863 A	30-04-96
		WO 9506480 A	09-03-95
WO 9623071 A	01-08-96	AU 4966996 A	14-08-96